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FRONT COVER

Fruits and Vegetables Gathered From the Markets of San Salvador

Central America is the home of many commodities that are imported by the United States.

BACK COVER

Technical Collaboration Between the Americas

As President Truman has said, all countries, including our own, benefit from economic and technical cooperation. The illustrations on the back cover indicate some of the benefits that have come to the Americas from such cooperation.

Our indebtedness for illustrative material is gratefully acknowledged as follows: Office of Information, pp. 75, 76, 78; Canadian Department of Agriculture, p. 79; British Information Services, p. 85; Theodor Preising, p. 86; State Department, p. 88; Brazilian Government Trade Bureau, p. 89; FAO, pp. 91, 92.

CORRECTION: A few copies of the March issue of *Foreign Agriculture* contained a brief comment below the map on the back cover. The legend misinterpreted the map information and should be deleted in file copies.

PAN AMERICAN WEEK

As we observe Pan American Week this year, we are keenly aware that here on the American continent we have a community of good neighbors, united in a common purpose.

This purpose is to increase the prosperity, welfare, and security of all Americans. It is being achieved through cooperative, democratic action by the nations of this hemisphere. For many years, inter-American programs in agriculture, public health, sanitation, and education have been under way. And we intend to strengthen these programs.

The partnerships we have already built in the Western Hemisphere have set the pattern for President Truman's bold new plan to make the benefits of scientific and industrial progress available to other areas of the world.

Our technical collaboration in agriculture is already demonstrating the value of such a plan. Through cooperative agricultural programs, Latin America is increasing its production of those crops that are important to the trade and defense of the Western Hemisphere. We are giving the technical assistance needed for improving and expanding their production. And our imports of these needed agricultural products benefit our neighbors by providing them with increased purchasing power for our own products.

Through Pan American agricultural collaboration, scientific knowledge has been increased in all the cooperating countries. The experience gained in these cooperative efforts is proving of inestimable value to technicians and scientists in both the Americas. It is such an exchange of information and ideas that promotes understanding among peoples and upon which, in large part, the real solidarity of our continent is built.

Charles F. Brannan

FOREIGN AGRICULTURE

ALICE I. FRAY, EDITOR

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Agriculture and Point Four

Fourth, we must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas.—From President Truman's Inaugural Address.



by ROSS E. MOORE

For many years the United States Department of Agriculture has been cooperating with other countries in scientific and technical agriculture, and the ground has been well prepared for establishing the type of program envisioned in Point Four of the President's inaugural address.

As the President stated, "all countries, including our own, will greatly benefit . . ." We in the United States have already received many benefits, especially in the field of agriculture, from many other parts of the world.

Two important crops found growing in North America in Colonial days were corn and tobacco. But corn and tobacco are not native to North America; they were brought here by Indians migrating from

tropical America. As a matter of fact, all major crops now grown in the United States originated in other countries. Most of them have been improved, in quality and yield, by strains brought in from various parts of the world. Improved varieties of wheat, responsible for the big yields of recent years, trace their ancestry back to Europe and western Asia, while improved varieties of oats trace their ancestry to South America and Australia.

Ranger alfalfa is a typical example of how different parts of the world may contribute to the development of a major United States crop. Thousands of years ago, alfalfa was growing wild in the fields of Persia. In the year 490 B. C., when the Persians invaded Greece, they took along alfalfa as feed for their camels and chariot horses. From Greece the plant spread to other European countries, including Spain; from here,



Dr. David Fairchild, famous plant explorer of the U. S. Department of Agriculture, leading a West Indian expedition to study tropical vegetation. United States has borrowed from many countries.



Prosperous Iowa farm community. Most of the crops had their origin in other lands.

it was taken to Chile and Peru by Spanish explorers.

A century ago, when gold was discovered in California, fortune hunters from the Eastern States sailed to California around the Horn, stopping on the way along the coast of Chile where they found alfalfa growing. They took seeds of the plant to California, and there it grew and prospered.

About this same time, in 1857, a thrifty young farmer named Wendelin Grimm migrated to Minnesota from a little village in Germany, bringing with him a few pounds of another variety of alfalfa seed. It also flourished and became the first variety in the United States to survive the cold Northern winters.

More recently, another country has had a part in this story. Some 25 years ago, when the Nation's alfalfa fields were hit by bacterial wilt, plant scientists searched the globe for strains that were immune to this serious disease. They found such strains in Turkistan. From them, and our standard varieties, they developed the outstanding alfalfa, Ranger.

The tomato is another plant that has received help from an ancient relative in a foreign land. When the commercial tomato crop was attacked by fusarium

wilt a few years ago, a tiny wild tomato, no larger than a cherry, found growing in the Andes Mountains of Peru, came to the rescue. The Peruvian tomato was practically immune to fusarium wilt, a characteristic the plant breeders were able to incorporate into the fine quality, highly resistant Pan America.

While plant scientists are constantly improving our crops with plant material from many parts of the world, animal scientists are working to develop better livestock and poultry for all sections of the country. Farmers in the Southern States, for example, may some day have new beef and dairy breeds developed from crossing domestic breeds with cattle imported from India. And so the work goes on, with many countries and many civilizations contributing to our vast agricultural output.

But there is a change from earlier days. No longer are agricultural knowledge and materials coming our way alone. We are beginning to repay the debt we owe to other countries. Seeds of our improved crops are sent to nearly all parts of the world, including countries where the greatest need is food. With an expanded program, we can be a great deal more helpful to people who want to produce their own food supplies, by making available to them our techniques in growing the crops and animals best suited to their soils and climate.

As has been said before, one of the greatest national resources we have to offer the world today is agricultural technology, an exportable commodity that

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The collaborative program discussed here is made possible by funds provided by this Committee.

we possess in ample supply, adaptable to transfer at a relatively low cost to us and to the recipients. In the transfer it is not lost to us; it is not consumed by use, nor does it deteriorate. Rather, it is capable of so extending its application that each applied fact and technique becomes a building stone with which others may develop sound practices and technologies appropriate to their needs.

President Truman stated in his inaugural address that our aim should be to help the free peoples of the world, through their own efforts, to produce more food, more clothing, more materials for housing, and more mechanical power.

We have been giving some help of this kind, in Latin America, since the establishment of the Pan American Union in 1890. But helping people to raise their levels of living is only one part of the "bold new program." Another important part is the stimulating experience, derived from working together, that leads to mutual benefits for all countries concerned. In this too we have made some progress during the past few years.

In 1939, the Congress passed legislation enabling the United States to cooperate with Western Hemisphere countries by lending technicians and assisting in setting up cooperative agricultural stations. In line with this legislation, scientists and technicians from the United States have been assisting a number of Latin American countries to develop their great natural resources, thus helping them to increase their export trade and stabilize their economies.

In Central and South America, working coopera-

tively with scientists from those countries, United States technicians are making headway in helping to increase the production of such important crops as rubber, medium and hard fibers, coffee, cacao, tea, and insecticidal and medicinal plants. Some of these crops, including rubber, hard fibers, and medicinal plants, are vital to our national defense. The war years taught us the danger of relying on only one or two areas for commodities absolutely essential in times of emergency.

To put it briefly, a program of technical collaboration with Latin America means an additional source of strategic and complementary crops, formerly imported from remote and uncertain sources. For Latin America, increased exports of these crops mean funds with which to buy more of the farm machinery, automobiles, electrical equipment, and many other commodities produced in the United States.

Today the United States Department of Agriculture is participating in joint agricultural programs with the governments of 15 Latin American Republics. These programs are designed to improve living conditions and increase agricultural efficiency in the cooperating countries, and many of them are also aimed at improving or increasing the production of crops needed but not grown in the United States.

Such a crop is kenaf fiber, from the plant *Hibiscus cannabinus*, native to the Far East. At the Cuban Agricultural Experiment Station, technicians from Cuba and the United States have been experimenting with kenaf and kenaf relatives since 1941. The fiber has proved so outstanding in quality, yield, and ease of



Centro Nacional de Agronomía, Santa Tecla, El Salvador, one of the Latin American-United States cooperative agricultural stations. (See back cover.)



Brahman bulls from India, on piney-woods range in Florida. Crossing these animals with native cows promises better livestock for the Southern States.

cultivation that it will supplement jute, long imported from India for use in cordage and gunny sacking. Production of jute has fallen off, and fiber users have for some years been seeking supplemental supplies and additional producing areas. Kenaf will provide a home-grown and an additional secure source of fiber.

In addition to establishing and maintaining joint cooperative agricultural programs in the American Republics, the Department of Agriculture facilitates the training of Latin American specialists who come here for on-the-job study in our State colleges of agriculture, State experiment stations and extension services, and the Federal Department of Agriculture. Since July 1942, nearly 300 "in-service" trainees have come to the United States under this program.

The Department is also responsible for assisting visitors from all countries who come for training in technical methods and for the sending of agricultural missions, upon request, to countries asking for this type of service. During the past 2½ years, more than 2,000 visitors, from 60 foreign countries, have come for technical training.

Two special missions, one in Panama and one in Colombia, are working with local scientists to develop long-range agricultural programs for those countries. Since 1940, missions have gone to nine other Latin American countries—Mexico, Nicaragua, Ecuador, Peru, Bolivia, Haiti, Venezuela, Brazil, and Paraguay. Outside the Western Hemisphere, missions have gone to China, the Philippines, Syria, Lebanon, Iraq, Saudi Arabia, Egypt, and Greece.

In 1948, when President Truman signed Public Law 402—80th Congress, the United States program of technical collaboration was expanded to include world-wide cooperation with other governments, "to promote the better understanding of the United

States among the peoples of the world and to strengthen cooperative international relations."

As for the future, plans of the Department of Agriculture for 1950 call for continued technical collaboration in Latin American countries and for extending this collaboration to countries of the Eastern Hemisphere.

We have passed the stage when agricultural knowledge and materials were traveling a one-way passage to our country from other parts of the world. We have learned the benefits of sharing our science and our skills. The groundwork for collaboration has been laid. The principles have been tested. We are now ready to set up a program whereby we can carry on and greatly expand the cooperative relationship set forth in Point Four of the President's inaugural address. This program must, of course, operate within the framework of the United Nations, the Food and Agriculture Organization, and the Organization of the American States.

As the program develops, we must marshal all sources of scientific and technical agriculture. We have already made a step in this direction by using the help of many of the land-grant colleges and State experiment stations and extension services.

But this is only a beginning. In order to stimulate the development of agriculture throughout the world, including the United States, we must enlist the help of all the land-grant colleges, all the universities, all the farm organizations, all federal, private, and industrial institutions engaged in farm research—the whole of United States agriculture.

In the words of President Truman, "all countries, including our own, will greatly benefit . . ."



U. S. pathologist and El Salvadorean technician survey diseased henequen plants.

Postwar Flaxseed Situation



by REGINA H. BOYLE

The pattern of world production and trade in flaxseed and linseed oil changed drastically with World War II. Before the war, more than

half of the world's flaxseed output came from South America and India, and much of the processing of the seed was done in Europe. Now, however, North America has taken the leadership in producing flaxseed—and, in both the Americas and in India, the emphasis is on exporting linseed oil rather than the unprocessed flaxseed. The flaxseed-producing countries built up active oil-milling industries during the war and Europe's processing facilities either are shut down or are running in low gear.

These postwar shifts have given rise to a complicated trade problem. For example, although Europe needs linseed oil for paints, lubricants, and other recovery program materials and although supplies this year are at an all-time high in the producing countries, these supplies are in the dollar areas and Europe has few dollars to spend.

All this is having a double repercussion upon Europe's economy—the linseed oil needed for recovery is becoming increasingly difficult to obtain, and its own oil-milling facilities, slowed almost to a standstill, are not yielding much economic return.

As for North and South America, flaxseed supplies are becoming burdensome and pose a real problem for the future unless trade solutions are found.

To evaluate the present situation, it is helpful to begin by taking a brief historical look at flaxseed production and use. Flax has been grown since ancient times and probably provided food just as it does in some parts of the world today. In India, especially in

the eastern section of the United Provinces and in the Punjab, small quantities of flaxseed are combined with raw sugarcane for the preparation of a sweetmeat known as pini. The Indians also use some seed in medical preparations and in poultices. This was a practice in the United States years ago and possibly still is in some areas. The primary uses of flaxseed, however, are for oil and oil meal.

There are many differences of opinion as to the origin of the flax plant, but it is generally believed that the variety grown for the production of linseed oil originated in Asia. It is now grown to some extent on every continent. The principal producing countries in 1948 were the United States, Argentina, Canada, India, and Uruguay, in order of importance.

The oil from this plant—linseed oil—is used principally in the manufacture of paint and varnish. Large quantities are also utilized in the production of linoleum, oilcloth, printing ink, and lubricants, and some, as protective coatings, core oil, and such. In Asia, the Soviet Union, and some European countries, linseed oil also goes into edible products.

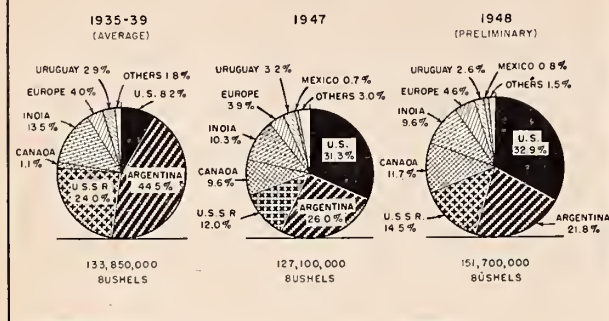
Although the United States for many years has been one of the world's principal consumers of linseed oil, only recently has it produced enough flaxseed to meet its needs. Well over a century ago, flaxseed was an important crop in the Eastern States. Then it moved westward with the extension of farming, finally concentrating in Minnesota and the Dakotas. In 1948 these three states produced 80 percent of the United States flaxseed crop.

Disease in the form of wilt followed this crop across the country and gave to flax the reputation of being suited only to new land. When the further extension of cultivation was no longer possible, the disease



Canada has become a leading flaxseed producer.

WORLD FLAXSEED PRODUCTION



threatened to destroy the flax industry. This handicap has been overcome by the development of wilt-resistant varieties through continued efforts of the United States Department of Agriculture, the experiment stations in flax-producing States, and the Flax Institute. Varieties best suited to particular producing areas have been developed and farmers supplied with seed and information as to best methods of cultivation.

Thanks to these experiments and to Government aids in the form of supported prices, loans on the harvested crop, and crop insurance, the United States harvested a record output of more than 50 million bushels in 1948.

Although linseed oil is the world's most common drying oil, its importance has declined in recent years. As a result of technical advances, the use of soybean oil, castor oil, tall oil, and secondary fatty materials in drying-oil products has increased materially. In the United States, for example, linseed oil accounted for 56 percent of the total drying oils consumed in 1947 compared with an average of 74 percent in the 10 preceding years.

The stepped-up production of flaxseed in the United States is only one part of the new postwar picture in world flaxseed production and trade. Before the war, South America, especially Argentina, produced about half of the world output, and North America produced less than one-tenth. In 1948, South America's share had dropped to one-fifth, while North America accounted for almost half of the world's flaxseed production. The United States alone contributed a third. India and the Soviet Union are producing smaller crops than in prewar years.

In world trade the shift has been from the export of flaxseed to the export of linseed oil and meal. During 1935-39, world flaxseed exports, chiefly from South America and India, amounted annually to approxi-

mately 75 million bushels. In 1947, the figure decreased to about 5 million. In the same interval, linseed-oil exports from flaxseed-producing countries rose from 3,600 tons to more than 290,000.

This change was brought about by the loss of markets during the war. Producing countries were faced with the problem of disposing of their flaxseed other than through export channels. Argentina, India, and Uruguay expanded their oil-milling facilities and now crush their commercial supply of seed and export the oil. These countries are reluctant to abandon the newly established industry and return to their former practice of exporting flaxseed. On the other hand, importing countries, particularly the Netherlands, France, and the United Kingdom, with well-established oil mills, are equally as anxious to return to their former practice of crushing, which not only provided linseed oil but also employment and livestock feed in the form of oilcake and meal.

There has been another important change in international trade in flaxseed. The United States, which before the war was the world's largest importer of flaxseed, now has an exportable surplus, as has Canada, also a net importer of flaxseed during 1935-39.

Much of the flaxseed and linseed oil is produced in these dollar areas. World supplies in 1949 have reached an all-time high. Flaxseed production in 1948 was the second largest on record, and stocks of both seed and oil from previous crops have become burdensome in the important producing countries.

Canada, Mexico, and the United States began the 1948-49 season with larger than average stocks. The new crops of flaxseed were exceptionally large. This will be the first season in several decades in which the United States has had a net export of flaxseed. All three countries will be in a position to export both seed and oil if markets become available.

The United States allocated for export during the first two quarters of this season (October-March 1948-49) 15.7 million pounds of linseed oil (equivalent to 800,000 bushels of seed) and 2.5 million bushels of flaxseed. Exports of linseed oil totaled approximately 30 million pounds in 1948 and exports of flaxseed reached 1,650,000 bushels.

Canada's 1948-49 exportable flaxseed surplus is estimated at about 13 million bushels. This supply could probably be purchased at a price lower than that on any other market, but the countries that need

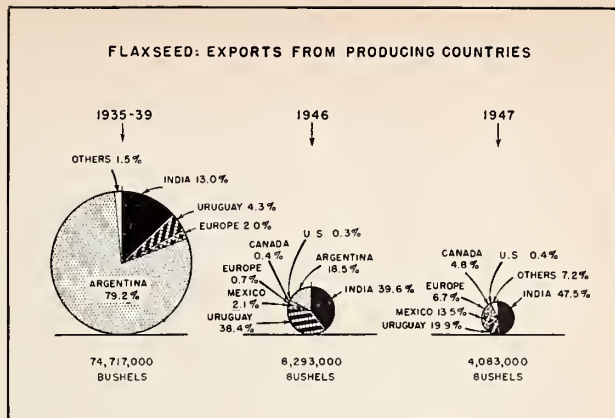
Mrs. Boyle is Agricultural Economist, International Commodities Branch, OFAR.

flaxseed are restricted in the use of dollar exchange. Argentina's 1948-49 flaxseed production is the smallest in more than 30 years, but stocks (chiefly in the form of oil) from previous crops are probably the largest on record. Storage space has become a problem.

At the end of the war, European countries were desperately in need of flaxseed or linseed oil, and the United States supply was not sufficient to meet even domestic requirements. In fact, world production of seed in 1946 was the smallest in many years. Postwar construction everywhere increased the demand for linseed oil. Under these circumstances, Argentina released small quantities for export at high prices. The Government was asking 31 cents per pound for linseed oil, f. o. b. Buenos Aires. At that time the United States ceiling price was 14 to 15.5 cents per pound.

In the late 1930's, exports of flaxseed supplied Argentina with foreign exchange for the payment of more than 10 percent of foreign purchases. Because of the high price, however, exports since the war have been greatly restricted, resulting in the current accumulation of flaxseed and linseed-oil stocks. Apparently Argentine officials assumed that their country would continue to be the principal source of supply, as it has been for many years.

Uruguay's 1948-49 flaxseed surplus of approximately 4 million bushels is derived entirely from the near-record crop just harvested. In contrast to the Government's policy in recent years, there are no restrictions on the export of flaxseed, oil, or oilcake. Restrictions were modified to some extent during the latter part of last season in order to move heavy supplies of flaxseed and oil, which are important products in Uruguay's economy. In 1946 exports of linseed oil and products amounted to 19 million United States dollars and in 1947 to 25 million.



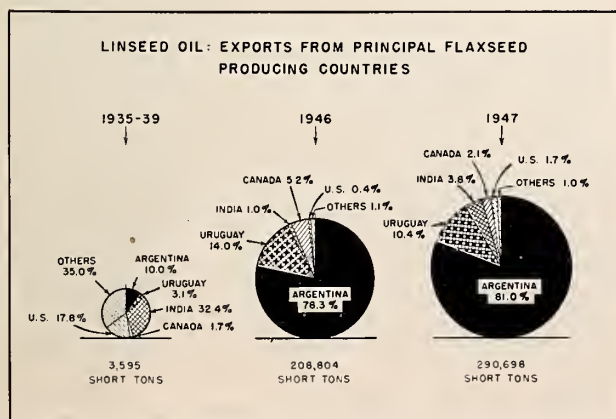
India, Turkey, Egypt, and Morocco all have a small quantity of flaxseed or linseed oil available for export.

India is interested in developing new and improved varieties of flaxseed. The Indian Oilseeds Committee plans to establish an oilseed research station in West Bengal and a flaxseed breeding substation at Kangra in East Punjab. The Committee is eager to utilize larger quantities of inedible oil for industrial purposes, thus releasing edible oils for human consumption.

European countries have increased their flaxseed output. The 1948 production exceeded that of the preceding year by 47 percent and the prewar average by 46 percent.

It is impossible now to forecast the future demand for linseed oil. Undoubtedly the countries participating in the European Recovery Program are in need of industrial oils. In this group (excluding Bizonal Germany but including Turkey) linseed-oil consumption averaged about 400,000 short tons before the war. Germany, during the period 1935-39, alone consumed another 105,000; eastern European countries, more than 35,400. The grand total for all Europe (excluding USSR) thus amounted to 540,400 tons.

In 1947 the ERP countries consumed slightly less than 272,000 tons of linseed oil. The United Kingdom is the only country that imported more than it did before the war. It is possible, however, that actual utilization was not quite as high as production and net imports indicate; estimates of year-end stocks were not available when the calculation was made. The quantities required by this important market are affected not only by the need for drying oil but also by the availability of dollars to purchase supplies that are for the most part in countries desiring payment in dollars.



Kenaf Fiber in Cuba



Kenaf time-of-planting studies at Santiago de las Vegas, Cuba. The kenaf in the foreground was planted on August 1 and is 15 days old. That at the left was planted on July 1 and is 46 days old. That at the right was planted May 1 and is 107 days old and is mature.



U. S. project leader (left) and Cuban assistant (right) discuss seed-production plot with a grower in one of the field trials on a private sugar plantation.



Binders for harvesting kenaf are specially built. This one, in use at Matanzas, Cuba, cuts and binds 45,000 pounds of kenaf an hour.



Machine with pressure rollers and a beater wheel separates fiber-bearing ribbons of bark from woody center of stalk. Pilot plant, Bahía Honda, Cuba.

Kenaf is a fiber plant of high promise, new to the Western Hemisphere. It is an effective substitute for jute in manufacturing rugs, carpeting, twines, burlap, bagging, electric cables, and oakum. Cuba, which uses around \$20,000,000 worth of sugar bagging yearly, is leading the way in demonstrating that kenaf grows well in this hemisphere.

The kenaf development, in which the Office of Foreign Agricultural Relations has been active, reflects the collaboration of governments, agricultural scientists, and private industry of the United States, Cuba, and other American Republics. The work has been carried on since 1943 under the "good neighbor" program of technical agricultural collaboration. One Cuban grower harvested 100 acres of kenaf in 1948. Others are planting the crop this year. Rapid commercialization is expected.

Kenaf production offers several potential benefits to the Western Hemisphere. One is the greater security that comes from having an additional fiber source close at hand. (Jute comes largely from India and Pakistan. Their jute output has been decreasing because more land is going into food crops.) Another benefit comes from the new opportunity for income. Cuba, for example, finds that the kenaf season dovetails nicely with the sugar season, giving both longer periods of employment and an additional cash crop.

Kenaf is a fast-growing fiber crop whose original home is India. Botanically, it is known as *Hibiscus cannabinus*. It is distantly related to cotton and okra. The plants grow 8 to 12 feet high in about 100 days, and stalks are about one-half inch in diameter. The fiber is in the bark and is extracted either mechanically or by retting in stagnant water. It is soft in texture and of a light straw color. Annual yields in Cuba are around 1 ton of kenaf fiber per acre.



Retting bark ribbons for about 10 days in water decomposes the gummy binder and frees the fiber. This is followed by washing.



Ribboned, retted, washed kenaf fiber at the privately owned Bahía Honda pilot plant is sun-dried and baled for export to the United States.

Photographic work was made possible by funds provided through the United States Interdepartmental Committee on Scientific and Cultural Cooperation.

Antricide*

This new drug of high promise for treating sleeping sickness has been announced recently. Reports are sketchy, but if Antricide lives up to the hopes of its discoverers, it will greatly benefit the agricultural development of Africa and other tropical areas.



by A. O. FOSTER

A new and potentially revolutionary treatment for sleeping sickness (trypanosomiasis) has recently attracted considerable publicity. It involves a chemotherapeutic agent called Antricide, a complex synthetic organic sulfur compound¹ that is reported to have very unusual properties. The great potential importance of this new drug makes it desirable to examine all available information on it, even though the data we have are limited and come from unverified sources.

Effective control of trypanosomiasis would be of tremendous benefit to the livestock industry of sub-equatorial Africa, where the disease is a major hazard and a serious obstacle to successful expansion of cattle production. Although an aggressive attempt is being made to combat the disease through elimination of tsetse flies, the carriers of sleeping sickness, efforts in this direction have so far been only partially successful.

Potential benefits from the use of Antricide are not limited to the African continent. Trypanosomiasis is a generic term covering a large group of related diseases that are endemic in many parts of the world and cause immeasurable losses of livestock, semi-domesticated animals, and game. These diseases also cause suffering and death, as well as economic hardship, to large human populations in the Tropics.

The scattered accounts we have of Antricide suggest that this new drug may be widely and potently effective against trypanosome diseases. Its discovery is credited jointly to the late Dr. F. H. S. Curd and to

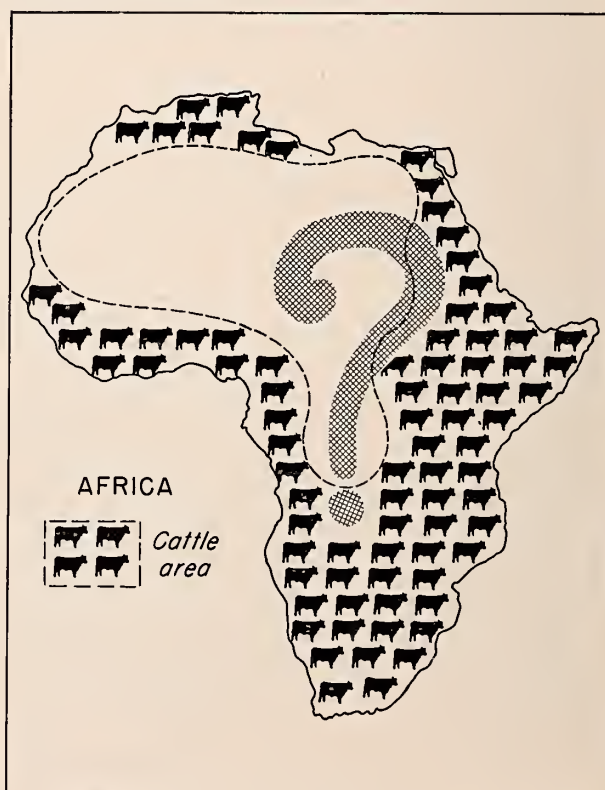
*This article is based largely on information supplied to the Department of Agriculture through the Foreign Service of the United States.

¹ The only chemical formula for this compound (also designated as "No. 7555") that has come to our attention is 4-amino-6-(2'-amino-6'-methyl pyrimidyl-4'-amino)-quinaldine-1-1'-dimethosulfate.

Dr. Foster is Parasitologist, Zoological Division, Bureau of Animal Industry, ARA.

Dr. D. G. Davey, both well-known research scientists of Imperial Chemical Industries (Pharmaceuticals), Ltd., London. These investigators evidently have not published any information on their new treatment. It is worth noting, however, that they are men of recognized ability and integrity and of high professional standing. The fact that other scientists have not been informed of the Antricide development through the usual scientific journals indicates that it is still in an early experimental stage.

It is unlikely that a definitive opinion can be expressed until a full account of experience with the drug is described and confirmed. However, we may well consider the unusual properties that have been ascribed to the drug in current reports, particularly with reference to recent progress made in the control of trypanosome diseases affecting the human and animal populations of central Africa.





Dr. D. G. Davey (right) codiscoverer of Antricide and his laboratory assistants. (Nairobi, East Africa.)

Experiments already made are alleged to show that the new drug can effectively destroy trypanosomes in cattle, horses, dogs, camels, pigs, and mice, and also presumably in man. Yet this is not the most remarkable property of the new drug, since other drugs are available for specific medication. Antricide is especially noteworthy because, in addition to an apparently unprecedented margin of safety and ease of administration, it appears to confer (in cattle, at least) an "immunity" to the disease for from 4 to 6 months after subcutaneous injection of a single dose. Because of this prolonged protection said to be offered by the drug, there is for the first time a prospect that control of trypanosomiasis can be achieved through chemotherapeutic means. Inducing such protection chemically constitutes an essentially new immunologic principle and will almost certainly require long-term experiments before its use as a practical treatment can be recommended.

Supplies of Antricide are evidently limited at present, and quite appropriately they are restricted to experimental use in those areas of Africa that are ravaged by trypanosomiasis. Until the advent of this drug, there was more or less general agreement that application of trypanocidal compounds should be limited to treatment of diseased persons and animals

and that any significant reduction in the prevalence of the disease would have to be achieved through control of the dreaded and elusive tsetse fly, which is the sole carrier and transmitter of all forms of African trypanosomiasis. The new insecticide DDT and development of airplane methods for applying it over enormous expanses of territory now seem to offer at last an effective means of combatting the tsetse fly. Since definite progress is being made along this more orthodox line of disease control, any step toward a change to another method should be taken only after careful consideration.

It should be emphasized, however, that the unusual properties attributed to Antricide may find complete confirmation. And if it possessed only a few of these properties, the drug would still be remarkable. There is a serious need for a drug that is safer than those now available for the treatment of trypanosomiasis, and the need is even more critical for a drug that can be depended upon to cure the disease in one injection instead of a long series of injections. And finally, there is need for drugs that are more effective and have a wider range of application than those now available. A drug that could meet any one of these requirements would represent a notable achievement in veterinary and human medicine.

Brazilian Agricultural Policy

—Part I*



by DWIGHT R. BISHOP

During the war, Brazilian economy became subject perhaps to more extensive control than did that of any other nation in the Western Hemisphere. Many of these controls are still in force; some have, in fact, been strengthened. A license is now required for all exports and virtually all imports. Only commodities officially declared as surplus can be exported and there are prescribed quotas for these. Floor prices have been placed on certain important export commodities. If goods are sold below these prices, licenses may be withheld. Permanent price-control legislation, recently enacted to replace temporary wartime measures, places ceiling prices on food and certain other products that domestic consumers must buy. A succession of Federal decrees since the end of the war has imposed an increasing number of restrictions on foreign-exchange transactions. Postwar measures granting additional authority to the various institutes and executive commissions have extended Governmental control to virtually every phase of agriculture.

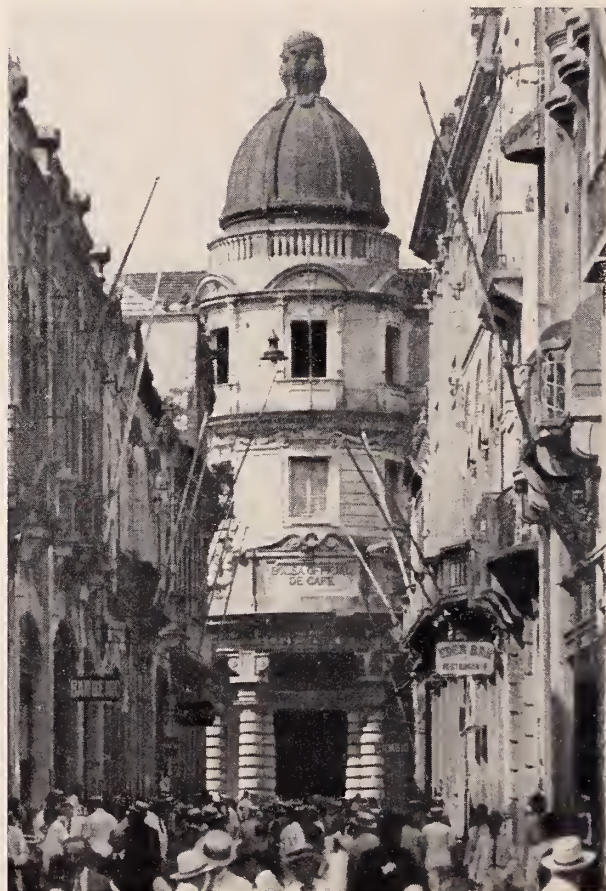
Basic Factors Affecting Policy

PHYSICAL AND HUMAN RESOURCES. Brazil extends over nearly half of the South American Continent. Its total area exceeds that of continental United States by about 250,000 square miles, the equivalent of another Texas. The greater part of this vast territory is made up of highlands, which vary from rolling hills to mountains. After more than four centuries of settlement, some three-fourths of the currently estimated 45 million inhabitants live in an area within about 100 miles of the coast. Penetration of the interior has been difficult because of such natural barriers as the dense forests in the Amazon Basin, the desert-like area in the northeast, and the escarpment in the south, which rises to several thousand feet within a few miles of the coast.

Less than 4 percent of the land is under cultivation—not quite a tenth as much as in the United States. Yet Brazil has a larger farm population. The

*Part II of this article, a discussion of the commercial and price policies and of the general trend in Brazilian agricultural policy will appear in the May issue of *Foreign Agriculture*.

present pattern of land settlement is characterized by the same exploitation of the soil, the same shifting of population from exhausted to new lands that has existed since colonial times. People are still only loosely attached to the land, ready to move to virgin soils whenever there is promise of speculative gain. The pioneer movement has continued to the present time in those few regions where the chances of quick profits are sufficiently good. Within the past decade, an estimated 2 million people have migrated from the older agricultural districts to the frontier regions of northern Paraná, western São Paulo, and southern Goiás. These areas are now largely occupied; similar migrations are improbable since no additional land with comparable soil is known to exist in Brazil.



Rua 15 de Novembro, Santos, Brazil. Along this street, more coffee is bought and sold than in any other place in the world.

Cultivation and harvesting practices on most Brazilian farms are primitive. Land is cleared by felling all trees and burning the debris. Crops are then planted, cultivated with a hoe, and harvested by hand. In some of the older sections, which are free of stumps, the land is plowed and in a few rice-growing districts threshing machines are used. Since the war, several large plantation owners have begun to use modern farm machinery, and the Government has been giving financial assistance to farmers who wish to purchase equipment. About three-fourths of the nation's crops, however, are produced without mechanical aid. Soil conservation practices and use of fertilizers are even more uncommon. The crop and livestock pattern varies widely from one part of the country to another, but almost everywhere inadequate transportation has retarded development.

AGRICULTURAL PRODUCTION AND TRADE. Despite a phenomenal industrial expansion during recent years, Brazil is still largely agricultural. From the tropical north to the temperate south the country produces a wide variety of farm commodities—coffee, cotton, cacao, rice, corn, tobacco, sugar, beans, fruits, manioc, babassú nuts, and castor beans. About two-thirds of the cattle are found in central and south Brazil, where the best pastures and markets are located. All but a fraction of the sheep-raising industry is in the southernmost State of Rio Grande do Sul.

Agricultural and forestry products made up more than 95 percent of the value of Brazilian exports during 1947, a somewhat larger proportion than in the immediately preceding years but conforming to the historical foreign-trade pattern. Coffee is by far the most important commodity in the country's export trade. In 1947 shipments comprised 37 percent of the total value of exports. From 1900 to shortly before the war, coffee shipments were valued at about two-thirds of Brazil's exports. Cotton has ranked second for more than 10 years, but due to declining production since 1944, it is losing this place. Cacao, oilseeds, tapioca, hides, rice, and tobacco have ranked among the first 10 exports on a value basis since the war.

Agricultural products have been of relatively minor importance in Brazilian import trade, accounting for less than 20 percent of the total value in recent years. Wheat and wheat flour normally make up the bulk of these imports.

Development of Agricultural Policy

For a number of commodities, Government agricultural policy has meant direct control of production

and marketing. Organizations have been set up for the coffee, cacao, mate, sugar, tobacco, rice, and livestock industries. Commonly referred to as defense (defesa) institutes, these agencies have usually been given the authority to control the industry through prorationing and valorization measures. Representatives of the industries have been influential in forming these controls. In many instances the institutes have acquired marketing monopolies. They have also been active in developing new markets, establishing marketing and grading standards, improving production methods, and making loans to producers.

COFFEE POLICY AND CONTROLS. For more than a century, coffee has been the dominant factor in the economic and political development of Brazil, although its relative importance has declined during the last decade. Profits have been such that it has been first choice on all available land suitable for its production. From 1727 when coffee was introduced in Para, plantings have gradually moved southward to the frost line in northern Paraná. As soils became depleted and trees died, new lands were cleared and planted. Thus through the constant shift to virgin soils, coffee was able to maintain its dominant position. Despite periods of overproduction and resultant low prices, returns were sufficient to encourage the steady increase in number of trees until 1934, when the Government prohibited new plantings. Although this restriction was lifted a few years later, tree numbers continued to decline due to depletion of soils in the old coffee-producing areas and the limited availability of new land. By 1947, Brazil had lost about a billion trees, or a third of the 1934 total.

Brazil normally accounts for about three-fifths of the total world output of coffee, but the annual yield is subject to wide variations. Droughts, frosts, and the tendency for an exceptionally high yield in one harvest to be followed by a low yield in the next cause a greater degree of fluctuation in production than is found in most other coffee-growing countries.

Since Brazil's economy has been based primarily on coffee, Government policy has revolved in a large degree around this crop. Direct Government intervention in the industry dates back about 50 years to the beginning of a long period of intermittent overproduction that forced prices downward.

In 1906, the State of São Paulo, aided by the Federal Government, purchased and withheld from the market

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For more than 10 years, cotton has been the second most important export crop in Brazil.

about 10 million bags of coffee within the next 2 years. When prices improved, these stocks were disposed of at a substantial profit. Similar programs were set up in 1917 and 1921. The latter differed from the others in that the Federal Government made all but a fraction of the purchases. In a further effort to regulate the market, the National Government began to limit the entries of coffee into the port of Santos from interior points.

The São Paulo Institute for the Permanent Defense of Coffee was set up in 1924. This organization purchased warehouses for storing stocks upcountry, continued restricting entries into Santos, and purchased and withheld coffee from the market when prices declined. The Institute was able to maintain a relatively high level of prices for several years, but in achieving this it was necessary to continually increase the quantity of coffee held in storage.

In 1927, seven other producing States joined São Paulo in regulating coffee entries into exporting centers. Despite the program, prices declined drastically in 1929, after a large crop. The Federal Government again took over the coffee-defense program, but prices continued to decline during 1930, and accumulated stocks reached 25 million bags. In 1931, the Government began to purchase all stocks in São Paulo and initiated a coffee-destruction program, which was continued until 1944. From 1931 to 1944 the equivalent of about 3 years' total world consumption of coffee was destroyed.

In 1933, a National Coffee Department was created. It assumed control of all defense programs and established a system of sacrifice quotas. Producers were required to deliver a percentage of their crop to the Government at prices considerably below the market. A heavy export tax was placed on coffee with the returns to be used for purchasing and destroying

surplus stocks. New plantings were restricted for several years. Due to a decline in production, stocks were reduced to such levels that destruction of coffee was discontinued in 1944. The Government has, however, continued to control port entries in an effort to prevent seasonal price fluctuations by limiting the quantity of coffee available in the export market. The National Coffee Department, in the process of liquidation since 1946, was superseded by a Division of Coffee Economy in the Ministry of Finance.

Brazilian valorization schemes appear to have been effective in stabilizing the economy for short periods. The long-term result, however, seems to have been an increase in production, which ultimately led to new accumulations of surpluses. Moreover, the program operated to encourage expansion in other coffee-producing countries, since it restricted exports from Brazil. As a result, Brazil's share in total world exports declined from about 60 percent before 1924 to approximately 50 percent in 1937. As early as 1931, therefore, Brazil began trying to work out an international control program with other coffee-growing countries. Such an agreement was not completed until the Inter-American Coffee Agreement, providing for a system of export quotas, was signed in 1940 between the United States and coffee-producing countries of the Western Hemisphere.

THE CACAO INSTITUTE OF BAHÍA. One of the first control organizations was the Cacao Institute of Bahía, organized in 1931 as a cooperative. Later the Federal Government granted it the power to fix minimum export prices. Due to competition from other producing countries, this effort was unsuccessful, and the Government assumed control of the Institute. In 1943, it was given a monopoly on cacao marketing through a regulation that required growers in the Bahía district (where about 95 percent of Brazil's cacao is grown) to sell the entire crop through the Institute. This agency controls the destination, quality, and sale price of all cacao exports from Bahía.

THE NATIONAL MATE INSTITUTE. Mate is a tealike beverage obtained from the leaves of the tree *Ilex Paraguayensis*. Numerous species of this plant grow wild in Paraná, Santa Catarina, Mato Grosso, and Rio Grande do Sul. Normally, at least two-thirds of the production is exported, chiefly to Argentina.

First efforts to control the industry were made in Paraná and Santa Catarina through organization of local institutes. In 1938, the National Mate Institute was organized to supervise the entire industry. Federal laws enabled it to fix prices, establish production and export quotas, and set up quality standards.

THE SUGAR AND ALCOHOL INSTITUTE. Normally, Brazil ranks seventh among the sugar-producing countries of the world, but practically all the crop is consumed domestically. During the depression, surplus stocks began to accumulate and prices declined sharply. As a result, producers clamored for a Government valorization and proration program.

Federal decrees issued in 1931 and the following year provided for the diversion of sugar into alcohol, which was required to be mixed with all imported gasoline, and specified that sugar manufacturers deposit 10 percent of their output in Government-controlled warehouses. A Commission was created to sell stocks thus accumulated, either on the domestic market if the price advanced above a designated level or on the foreign market if prices declined below an established minimum.

In 1933, the Sugar and Alcohol Institute was created to take over the administration of sugar policy. Federal law gave broad powers to the Institute, including the authority to control exports, fix prices, limit production, determine the percentage of alcohol to be mixed with gasoline, and make loans to producers. Domestic prices, as established by the Institute, have generally averaged considerably above the world market. To maintain this level, surpluses have either been exported or converted into alcohol. Largely because of this program, the domestic market has remained reasonably stable since 1934.

THE RICE INSTITUTE OF RIO GRANDE DO SUL. Most of the rice produced in Brazil has been consumed in the country. In recent years, however, considerable quantities have been exported, chiefly from the State of Rio Grande do Sul. Government intervention in the rice industry began in 1926 when the Rice Syndicate of Rio Grande do Sul was organized to control prices. The Syndicate was superseded in 1936 by the Rice Institute of Rio Grande do Sul, established by a State Government decree. This agency was authorized to fix minimum prices paid to farmers, control rice shipments, make loans to producers, maintain an experiment station, and furnish various statistical data to the industry. It also determined the export quota from each crop.

Although the Institute controlled the quantity of rice moved out of the State, as well as the market price, established exporters served as intermediaries for the actual movement of the product until 1948. During the early part of that year, the Institute began to handle all export business directly, with purchases and sales being made in the name of the organization.

OTHER INSTITUTES. Government intervention

through the organization of official and semiofficial institutes has been extended to a number of other agricultural industries. The Meat Institute of Rio Grande do Sul, created in 1934, was authorized by State decree to improve production methods, construct processing plants, assist in the organization of cooperatives, provide statistical services, and develop export markets. This agency is credited with considerable success in increasing meat production in southern Brazil.

Established by Bahía State decree in 1935, the Tobacco Institute of Bahía exercises supervisory, promotional, and regulative controls over the tobacco industry in that State. Bahía accounts for all but a fraction of Brazil's production of cigar-type tobacco and from 80 to 90 percent of the total tobacco exports. In 1941, the State gave the Institute additional authority over marketing and the export trade, and in 1943 the Federal Government gave it the power to fix prices for exports, as well as minimum prices paid to producers.

There are other agencies that have varying degrees of control over their particular industry. The Silk Institute of São Paulo, for example, was organized primarily to distribute silkworm eggs and mulberry cuttings and to provide other services to assist producers. Agencies have also been created for the fruit, manioc, salt, pine lumber, and fish industries.

Several of the recently formed organizations have been more centrally controlled by attaching them to the Federal Ministry of Agriculture. The Executive Commission for Mandioca Products, created in 1942, is such an agency. While its primary objective is developmental, the organization has been accorded broad powers of the trade. It has authority to expropriate milling equipment and other installations, if it is necessary; establish production and marketing controls; and organize and direct producer cooperatives.



Drying coffee on a Brazilian plantation. For nearly half a century, the Government has regulated coffee production and marketing.

Tobacco in Greece



by C. S. STEPHANIDES

From the standpoint of Greece's total agricultural income, tobacco is the country's third most important crop.

But it is Greece's leading export, and its effect upon the country's over-all economy makes it a product of first importance. During the 20 years before World War II, tobacco accounted for 50 percent or more of the total value of all Greek exports. About 80 percent of the crop was exported, and the revenue derived from the tax on tobacco was the Greek Government's largest single source of income.

Tobacco is also the only farm product of Greece that provides employment for large numbers of city people. About 45,000 workers are employed in handling tobacco and making cigarettes. Thousands of other persons are engaged in the commercial aspects, as managers of cigarette factories and as tobacco sellers and exporters.

Despite its economic importance, the growing of tobacco in Greece is a relatively modest agricultural operation. Farms in tobacco-producing areas are extremely small, averaging only 3 to 8 acres, and their soil is probably the poorest of all the cultivated land in Greece. Less than 15 percent of Greek farmers are tobacco growers, and about half of these depend entirely upon tobacco for their income. In most cases, the families of these farmers are large, and, considering the poor soil of their farms, no other crop could provide as good a living.

Greek tobacco, like that grown in Turkey and Bulgaria, and to a lesser extent in Yugoslavia and Albania, is classed as oriental tobacco. Because of its distinctive aroma, it is in demand throughout the world. Manufacturers blend it with other types of tobacco in accordance with the smoking habits of their customers. Smokers in some countries prefer oriental tobacco exclusively.

Oriental tobacco represents only about 7 percent of the world's total tobacco production. It is one of the most costly types to produce, primarily because the work involved in harvesting, curing, and sorting must be done entirely by hand. In addition, the yield per acre is very low. Because of the high cost of producing oriental tobacco and the growers' depend-

ence on the crop, declines in prices for tobacco tend to affect the producers of this tobacco more severely than most others. In general, it requires about 25 percent of the farm price of oriental tobacco to cover the growers' cash outlay for hired labor, fertilizer, insecticides, and such—and in some sections of Greece, where extreme care is taken to produce tobacco of the highest grade, this figure may exceed 40 percent. Greece's best oriental tobacco is produced in eastern Macedonia and western Thrace. Here the soil and climate are well suited to the crop, and farmers have learned over the years how best to handle it.

Tobacco has not always been of such vital importance to the Greek economy. In 1913, it represented only about 15 percent of the value of Greek exports as compared with 50 to 60 percent since 1924. This shift in importance of tobacco is the result of acquiring western Thrace at the end of the Balkan war in 1913 and of the exchange of minorities with Turkey from 1922 to 1929. Many of the people resettled in Greece were experienced oriental-tobacco farmers who brought with them improved cultivation and handling practices. As a result of this resettlement of refugees, the tonnage of tobacco exported from Greece more than doubled in the following 6 years.

TABLE 1.—*Tobacco exports, prewar compared with postwar, by countries*

Country of destination	Year		
	1938	1946	1947
	1,000 pounds	1,000 pounds	1,000 pounds
Argentina.....		33.1	55.1
Austria.....	1,818.8	2,766.8	1,190.5
Belgium.....	1,981.9	674.6	209.4
Canada.....			143.3
Cyprus.....	619.5	202.8	72.8
Czechoslovakia.....	2,372.1	661.4	2,982.8
Denmark.....		634.9	
Egypt.....	2,952.0	903.9	698.9
Finland.....	3,029.1	169.8	2,478.0
France.....	471.8	2.2	1,091.3
Germany.....	58,807.7		
Great Britain.....	1,097.9	1,838.6	9,493.0
Hungary.....	954.6		
Italy.....	1,858.5		5,952.4
Malta.....		17.6	
Morocco.....			68.3
Netherlands.....	2,200.2	94.8	925.9
Norway.....		275.6	152.1
Palestine.....		13.2	35.3
Poland.....	2,771.2		
Soviet Union.....	405.6	220.5	
Sweden.....	288.8	361.6	645.9
Switzerland.....	1,062.6	992.1	568.8
Syria.....	22.0		57.3
United States.....	22,105.5	18,472.3	11,891.6
Uruguay.....		28.7	17.6
Rumania.....	138.9		
Total.....	107,386.7	28,364.4	38,730.4

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It increased from about 47 million pounds in 1923 to more than 108 million pounds in 1930.

As has been mentioned, the economy of Greece is very sensitive to changes in the world market for its tobacco. Unfavorable market conditions, resulting in a drop in the price for oriental tobacco in importing countries, have at various times had a serious effect on the entire Greek economy and especially on Greece's ability to meet its financial obligations to foreign countries. Because so much of its cash resources were represented by tobacco, Greece was in a particularly vulnerable economic position when the country was invaded by Axis forces in 1940.

Official records show that before the outbreak of the Greek-Italian conflict in October 1940 the stocks of finished tobacco stored in Greece amounted to 275,575,000 pounds. Tobacco merchants held 132,276,000 pounds of these large stocks; 110,000,000 pounds were in the hands of banks, and the remainder was owned by manufacturers (26,455,200 pounds) and growers (6,613,800 pounds). When the war began, 46,296,600 pounds of this tobacco were immediately exported and about 8,818,400 pounds were allotted to local consumption. An additional 33,069,000 pounds were received by German manufacturers who had purchased this tobacco before the war, and 22,046,000 pounds went to the Greek tobacco industry. But the remaining 165,345,000 pounds, or 60 percent of the original stocks, were confiscated by the Germans and was later "purchased" by them at insignificant prices. The tremendous losses suffered as a result of these transactions fell mainly upon the banking organizations of the country, especially the Bank of Greece and the Agricultural Bank, which had extended large loans on the security of tobacco stocks.

The Bulgarians who occupied eastern Macedonia and Thrace were interested in keeping tobacco production up to prewar standards. Their efforts failed, however, because many of the Greek tobacco growers fled the area to escape persecution and torture by the invaders. Most of them sought refuge in the cities, which were occupied by the Germans. The acreage of tobacco in Macedonia and Thrace was reduced, and the little that was produced was confiscated by the Bulgars. It is reported that in their retreat from this area in 1944 the Bulgarians took with them 81,570,200 pounds of tobacco.

Since the war, tobacco production in Greece has increased steadily. In 1947, it had reached 103,616,200 pounds, or nearly 80 percent of prewar level, as compared with only 56,217,300 in 1946. Some difficulty

was anticipated in marketing the 1947 crop because of the postwar shift in demand in most central European countries from oriental to other types of tobacco, but the crop has been marketed without difficulty.

Before World War II, central Europe bought more than half of Greece's exportable tobacco. The war reduced Greece's customers to poverty and decreased sales to them, but in 1948 this was largely compensated for by increased sales to other countries.

Greece held first place among oriental-type tobacco-producing countries before World War II, both as to the quality and the quantity of its output. But since the war, Greece has been surpassed by Turkey and Bulgaria in volume produced, but its leaf is still considered superior in quality to similar tobacco from other countries. The sharp decline in Greek tobacco exports from prewar figures, due mainly to small crops prior to 1947, is indicated in table 1.

Turkey and Bulgaria maintained their tobacco production during the war, and, as soon as it was over, they increased both their production and their export of tobacco. Table 2 shows the position of Greece as a producer of oriental tobacco relative to her neighbors, Turkey and Bulgaria, from 1924 through 1947.

Before World War II, Germany and the United States were Greece's best tobacco customers. Germany bought 40 to 50 percent of Greek tobacco exports, and 15 to 20 percent went to the United States. In 1938, slightly more than 75 percent of total Greek tobacco exports went to these two countries, and the value received represented almost 80 percent of Greece's total income from tobacco exports. Since the war, the percentage of total exports taken by the United States has increased, but Germany, where there has been a shift in demand from oriental-type



Drying oriental-type tobacco on a farm in Greece.



Much hand labor goes into the production of tobacco in Greece.

cigarettes and with about one-third of its population under the control of the USSR, may never regain its prewar position. Only limited quantities of tobacco were imported into Germany in 1946 and 1947. None of this came from Greece.

After the recent war, as after the war of 1914-18, tobacco consumption throughout the world increased. Despite widespread poverty and shortages of many essentials of life, many nations have made a great effort to satisfy the demands of their smokers. There has been a significant increase in the number of both women smokers and "teen-age" smokers. Also, there is no doubt that the war has changed smoking habits. Today, fewer persons smoke pipes and cigars and more smoke cigarettes, but in countries where oriental-type cigarettes were popular before the war, smokers have to a considerable extent shifted to other types. Part of this change in smoking preference is certainly a result of the influence of the United States Army. Wherever it was stationed in Europe and elsewhere, the local population developed an increasing desire for American cigarettes.

American cigarettes became extremely popular among those who could afford them. Even in Egypt, Greece, and Turkey, where oriental tobacco had formerly set the smoking standard, American cigarettes came to be considered essential in distinguished gatherings. It became not only the habit but—what is quite as compelling—the fashion to smoke American cigarettes.

American cigarettes, too, contain smaller amounts of oriental tobacco than they did before the war, but consumption of this tobacco in the United States has increased. Before World War II, American cigarette manufacturers used about 9 percent oriental tobacco in their cigarette blends. During the war, stocks of oriental tobacco in the United States were reduced, and new importations from Turkey, the only important oriental-type tobacco-producing country left free to carry out her commerce with both belligerents, were costly and dangerous to ship. As a result, American manufacturers reduced the percentage of oriental

tobacco in their cigarettes to about 6 percent. But an increase of about 100 percent in the volume of cigarettes consumed resulted in larger total consumption of oriental tobacco.

When the war was over, low stocks in the United States, combined with increased cigarette consumption, afforded a market for oriental tobacco above the prewar level. On the other hand, central European consumers—especially in Austria and Germany—who once smoked oriental cigarettes almost exclusively, were no longer participating in the market at their prewar rate.

The increasing production of oriental tobacco in Bulgaria, southwestern Russia, and in Yugoslavia offers challenging competition to the tobacco producers of Greece and Turkey. This is particularly significant since countries dominated by the Soviet Union prefer to buy from "comrade" states.

Another factor in this situation is that during World War II many tobacco-importing countries were obliged to grow their own leaf. Although their product is of inferior quality, production in some of these countries has increased since the war. Their governments have encouraged cultivation of tobacco through research and tariff protection. Oriental-tobacco producers might consider these new postwar developments.

Turkey and Greece are still two of the three largest producers of oriental tobacco. For many years, their high-grade product dominated the international market, and they developed expert methods of production, grading, and handling. Tobacco growing in these countries became so firmly established, especially among small landowners in areas of low fertility, that a substitute crop is very difficult for them to grow.

If Greece wishes to meet the demands of the world market, there are several factors that it might consider. Since Greece can produce high-grade tobacco, it could encourage its production in areas where costs can be reduced and at the same time discourage production of low-grade tobacco. Such a policy cannot be put into effect over night by government decree. It requires a careful study of tobacco-producing areas and the discovery of new ways for some of the present tobacco growers to make a living. Solution of this problem is not so difficult in areas where farmers own sufficient land to make the change and can be shown that cultivation of crops other than tobacco would be more profitable. But in the intensive tobacco-growing areas, where the pressure of population on the land is great and substitution of other crops for tobacco is

difficult, the only solution appears to be emigration.

Reduction in the cost of producing oriental tobacco, would aid greatly in marketing the crop. The tax on exported tobacco in Greece, often a fifth or more of the total price for the leaf, has an important effect on the ability of Greek tobacco to find markets.

It is probable that the cost of handling this tobacco could be reduced if more women and fewer men were employed in its processing and if some of the less important handling jobs were eliminated. Some of the work could be done on farms where labor is plentiful and relatively cheaper than in the cities where a large part of the tobacco processing is customarily done. And some of the costly practices of tobacco farmers might be revised to help reduce production costs.

In almost every community, the farmers work independently to raise their tobacco. Many of the operations, including preparation of seedbeds, proper fertilization, disinfection, selection of seed and seed treatment, spraying the plants for disease control, and irrigation of seedbeds during transplanting, could be done more economically through a cooperative organization. This would not only improve the quality of the tobacco grown but would also reduce its cost. Tobacco cooperatives could also provide economical curing and storage space and thus help further to improve the quality of the tobacco. In some sections of the tobacco-producing areas, growers have already organized marketing cooperatives, and their success in this important undertaking has been apparent. Cooperative production, handling, and marketing of oriental tobacco offers a promising possibility of improving the quality of the product and reducing its cost of production, which would make this tobacco a more attractive commodity to the countries of Western Europe and to other potential customers who might be induced to use more oriental tobacco.

TABLE 2.—*Prewar and postwar production of tobacco in Greece, Turkey, and Bulgaria*

Year	Production				Percentage of total		
	Total	Greece	Turkey	Bulgaria	Greece	Turkey	Bulgaria
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds			
1924-29.....	314,012.2	133,739.8	112,811.6	67,460.8	42.6	35.9	21.5
1930-35.....	237,856.5	99,167.3	83,574.2	55,115.0	41.7	35.1	23.2
1936-39.....	356,984.3	140,851.9	139,471.8	76,660.6	39.4	39.1	21.5
1940.....	323,855.7	107,723.4	139,471.8	76,660.5	33.3	43.1	23.6
1941.....	233,985.2	26,508.1	120,741.5	86,735.6	11.3	51.6	37.1
1942.....	237,345.0	8,836.0	136,495.6	92,013.4	3.7	57.5	38.8
1943.....	219,875.8	19,881.1	115,889.2	84,105.5	9.0	52.7	38.3
1944.....	251,421.4	44,182.4	135,618.2	71,620.8	17.6	53.9	28.5
1945.....	257,279.0	53,020.6	153,956.0	50,302.4	20.6	59.8	19.6
1946.....	356,600.7	56,334.2	216,394.7	83,871.8	15.8	60.7	23.5
1947.....	432,703.5	105,741.4	220,920.8	106,041.3	24.4	51.1	24.5

SOURCE: Report of the National Bank of Greece.



The Citrus Industry, Volume II: The Production of the Crop, edited by Leon Dexter Batchelor and Herbert John Webber: 933 pp., illus. University of California Press, Berkeley and Los Angeles, 1948. \$10. Each of the book's 18 chapters was written by a specialist in a particular phase of citrus production. This volume is a comprehensive study of modern techniques and problems of all the ordinary citrus-orchard practices. Since the text was prepared in California, emphasis is placed on practices in that State, but the information is of world-wide interest and value. Several chapters are devoted to rootstocks and their relation to the spread or prevention of various virus and fungus diseases. The other chapters cover nursery methods; planning, planting, and caring for the orchard; insect pests and diseases and their control; rodent injury and control measures; frost protection; and the effect of and treatment for freezes. The book is generously supplied with illustrations, many of which are colored.

Who's Who in Latin America, Parts I-VII, edited by Ronald Hilton. Ed. 3. Stanford University Press, Stanford University, California, and The A. N. Marquis Company, Chicago. Part I. Mexico. 130 pp., 1945. \$2.50. Part II. Central America and Panama. 103 pp., 1945. \$2.25. Part III. Colombia, Ecuador, and Venezuela. (In preparation.) Part IV. Bolivia, Chile, and Peru. 209 pp. 1947. \$2.50. Part V. Argentina, Paraguay, and Uruguay. (In press.) Part VI. Brazil. 269 pp. 1948. \$3.50. Part VII. Cuba, Haiti, and Dominican Republic. (In preparation.) This biographical dictionary series lists notable men and women living in Latin America and gives their birth dates, parentage, education, family status, career outlines, organization memberships, published writings, and such. The compact information presented in these volumes makes them important reference books for anyone interested in Latin America and its people.

Abstracts of Some of the Literature Pertaining to Coffee, by Julian C. Crane and Laurenz Greene. 133 pp. Issued by the Office of Foreign Agricultural Relations, Washington, D. C., 1948, now being reprinted. These abstracts from more than a hundred publications on coffee varieties and breeding, soils and nutrition, shade, propagation, pruning, and flowers and fruiting should be of value to research workers in this field.

INTERNATIONAL *Agricultural News*

Pan American Day

April 14 is Pan American Day, marking the anniversary of the founding of the Pan American Union in 1890. This day has come to be observed annually as a commemorative symbol of the bonds of friendship and common interest among the 21 Republics of the Americas.

Pan American Day holds a unique place in the calendar of world affairs. As pointed out by Dr. Alberto Lleras, Secretary General of the Organization of American States, "This purely American Day is the only holiday set apart by the governments of a whole continent to symbolize their common bonds and their common aspirations for a world in which cooperation for mutual benefit is the main factor."

"Juridical Equality—Economic Cooperation—Continental Solidarity" is the slogan that keynotes the 1949 observance of Pan American Day. As in preceding years, many organizations in the American countries will have special observances commemorating the event, including governmental, civic, educational, and cultural groups.

Agricultural groups have come to recognize a special interest in marking the anniversary of Pan Americanism. More than half the people of the Western Hemisphere depend on agriculture for a living. Inter-American cooperation in agriculture is an important part of the "good neighbor" relations between the 21 members of the Pan American Union. A number of programs of agricultural cooperation between the countries are going forward today.

"Point Four" Program Reviewed

World-wide interest is being shown in the Point Four Program, announced by President Truman on January 20—the "program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas."

Many countries are asking when the anticipated work of economic cooperation and technical assistance will be under way, which areas will receive priority attention, and what types of assistance will be extended. Specific answers to these and similar questions have not yet been fully developed, for a program

of the magnitude envisioned must, of necessity, be built with carefully laid plans. It is possible, however, to present at this time a review of early progress and a summary of basic approach.

In a number of ways the United States has learned of the mutual benefits that result from lending a helping hand to other nations. Experience has been gained through the Western Hemisphere programs of technical collaboration, through the European Recovery Program, through cooperation in the United Nations, and through the technical assistance extended by private organizations and business enterprises. On experiences provided by activities such as these, the Point Four Program is being developed.

The President has named the Secretary of State to direct the planning necessary to translate the program into action. Assistant Secretary of State for Economic Affairs, Willard L. Thorp, has been designated to coordinate the planning of the program, and interdepartmental consultations have begun with the Executive Committee on Economic Foreign Policy. An Advisory Committee on Technical Assistance has been set up to help give guidance to the program, and all key Departments are represented. Under Secretary Albert J. Loveland represents the Department of Agriculture. Within the Department of Agriculture a special departmental committee has been set up to assist in expanding programs of technical agricultural collaboration.

Mr. Thorp, on February 25, told the United Nations Economic and Social Council that the United States suggests a concrete program be drawn up for enlarging the United Nations activities in the field of technical assistance for economic development, and that the program include ways and means of financing and coordinating the work.

"The timetable for the attainment of these objectives of economic development is measured in decades, not in years," Mr. Thorp said. "The reorientation of the way of life of millions of people can come only gradually. However, with a bold new program of technical cooperation the United Nations can hasten significantly economic development. There is needless suffering in the world today and discontent and unrest which spring from it. The time is now to embark upon a program which will raise the spirits of men and give them new hope."

A pledge of cooperation with the Point Four Program has been extended by the Association of Land-Grant Colleges and Universities, the offer declaring that "one of the greatest contributions America can make to the improvement of living standards, elim-

ination of hunger, and fostering of peace in parts of the world is in the direction of encouraging education in food production, food handling, food utilization, homemaking, etc., among rural and urban people, following the objectives and basic philosophy of our Land-Grant Colleges."

J. A. Hannah of Michigan State College, President of the Association, said in a letter to President Truman:

"The release of staff members on leave for work abroad or consultation in this country would handicap some institutions in carrying out their domestic responsibilities. The training of foreign students and consultation with foreign visitors would involve serious demands on crowded facilities and on the time of staff members. But being fully aware that sacrifices are involved in a world program such as you have outlined, I am personally convinced, and our member institutions collectively are convinced, that the stability, welfare, and democratic freedom of the world demand the cooperation of all Americans in such a program."

Secretary of Agriculture Charles F. Brannan, in an address to the National Farm Institute at Des Moines, Iowa, said on February 19:

"Actually, we have for some years been operating on a fairly large scale upon the basis of Point Four. Our reciprocal trade agreements are founded on the principle of mutual aid. Since 1939 we have had the 'Good Neighbor' program of technical agricultural collaboration with the countries of South and Central America. . . . Last year legislation was enacted which authorized expansion of the so-called 'Good Neighbor' policy to the people of the other parts of the world Our postwar relief programs, culminating now in the European Recovery Program, have also been concrete applications of Point Four On still another front, our government has taken the lead in helping to establish the United Nations and the various organizations which operate under the U. N."

As the Point Four Program goes forward, it is expected to build upon governmental programs now in operation, facilitate the expansion of private undertakings, and take action through the United Nations to the fullest extent practicable. A primary aim, as Mr. Thorp pointed out to the United Nation's Economic and Social Council, will be that of economic development—i. e., more efficient use of the world's resources so that people can live better.

"There are no stereotyped patterns of economic development applicable to all, or even to many, countries," Mr. Thorp said, "Different countries have

different needs and different possibilities. Development must take into account and, so far as possible, be adapted to local resources, attitudes, social and legal structures, customs and practices. In the poorer and less developed areas a basic improvement in health, literacy and vocational skills may well be prerequisite to increased production and improved standards of living. It is also likely that, in many of the less developed areas, agriculture, rural and small scale industry and transportation may stand in most need of improvement. For the somewhat further developed areas, priorities are likely to be quite different, with emphasis on improvement in the functioning of government and increases in industrial productivity."

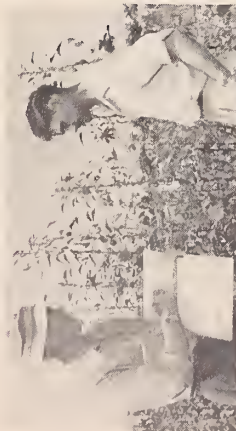
Mr. Thorp told the United Nation's Council that, while capital investment in countries offering development opportunities should be encouraged, "the bulk of the capital for economic development has to come from the people themselves." One reason for this, he said, is that funds available for foreign investment would fall far short of the world's capacity to use capital. Another reason is that a country importing a great bulk of capital funds would be faced with heavier carrying charges than it could readily meet in foreign exchange. He pointed out further that "American policy does not countenance use of capital investment abroad for the purpose of exploitation. As President Truman said, 'The old imperialism—exploitation for foreign profit—has no place in our plans. What we envisage is a program of development based on the concepts of democratic fair-dealing.'"

In helping other countries achieve economic improvement, Mr. Thorp said, the concept of technical cooperation must be broad in substance and in method:

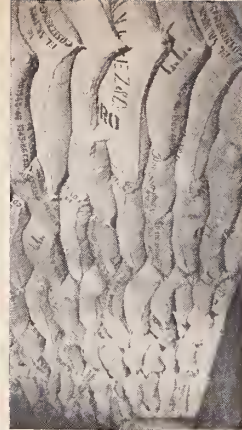
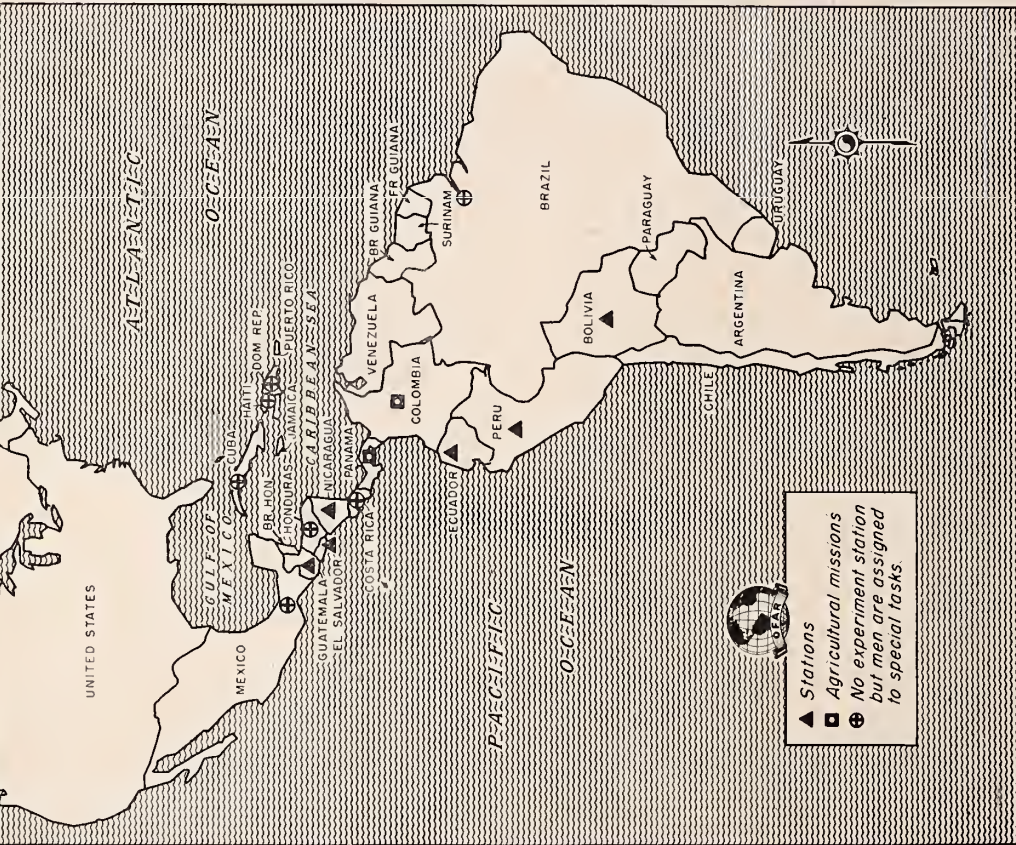
"It embraces such varied activities as training in administration, in industry, and in agriculture; health programs, broad technical missions, and the dispatch of individual experts; experiment stations; training fellowships and local technical training institutes; dissemination of information through conferences, seminars, and publications; provision of laboratory material; demonstration services and equipment; basic and vocational education; advice concerning particular industrial and agricultural projects; the improvement of fiscal systems; resource surveys and general assessment of development potentialities; analysis of methods of production, marketing, and management; consultation on measures to combat inflation or to provide for displaced workers; and advice on steps designed to mobilize domestic savings for constructive investment."

TECHNICAL COLLABORATION BETWEEN THE AMERICAS

UNITED STATES EXPORTS



UNITED STATES IMPORTS



The photographs reproduced here illustrate the benefits that accrue to the United States through its collaboration with the Latin American countries. Pictures on the left show representative United States exports—technicians on loan, laboratory equipment and knowledge, aid in setting up agricultural stations, and a great variety of manufactured goods. Commodities shown on the right are representative of United States many imports from Latin America—chicle, coffee, mahogany, and cinchona bark.